

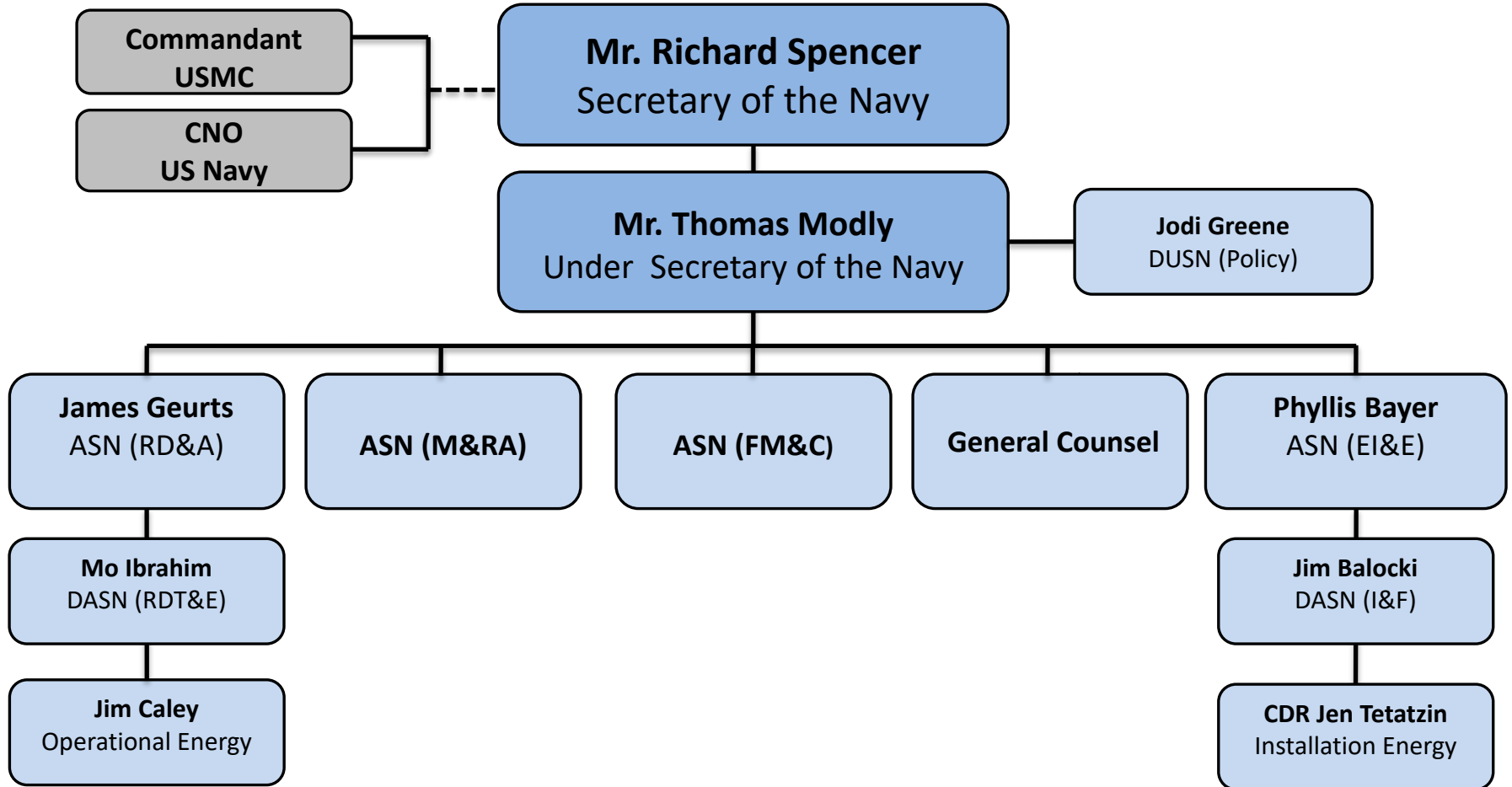
FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR

April 19-20, 2018
Nashville, TN

Department of Navy's Energy Security Framework:
How it Relates to Utility Providers that Support Navy
and Marine Corp Installations

Hosted by:





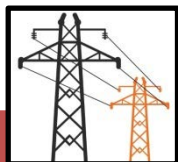


DON Energy Security Framework



3 Pillars of Energy Security (P-602)

Reliability



The percentage of time energy delivery systems (utilities) can serve customers at acceptable regulatory standards.

- Outage Duration
- Outage Frequency
- Availability
- Power Quality

Resiliency



The ability to avoid, prepare for, minimize, adapt to, and recover from energy disruptions.

- Backup Generation
- Uninterruptible Power Supply
- Power/Fuel Storage

Efficiency



The use of the minimum energy required to achieve the desired level of service.

- Metering
- Audits
- Intensity Reduction

ESF sets the requirements for installations energy investments



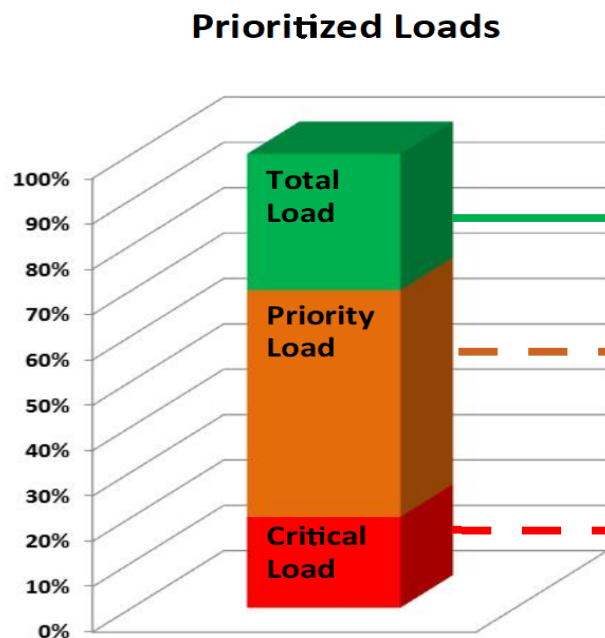
Resilience Affordability – Load Prioritization



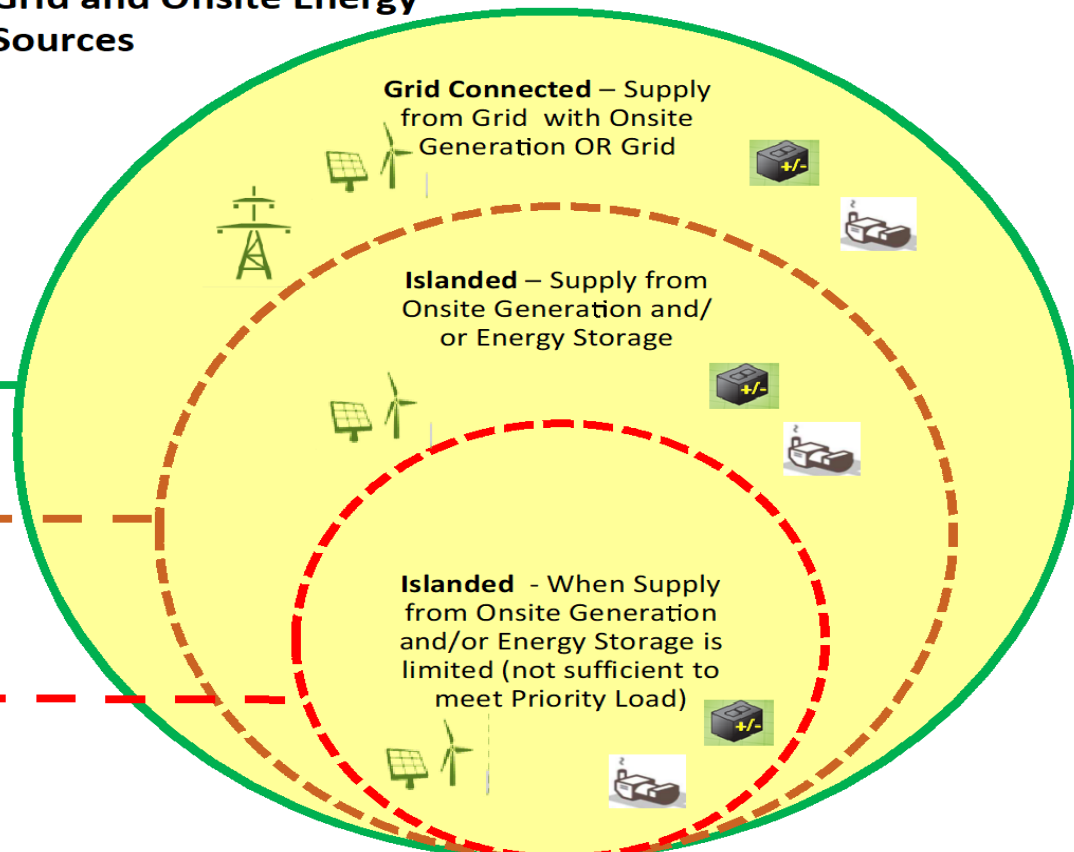
Prioritized Load Concept

1. DOD Mission Assurance
 2. Service critical (Navy/USMC mission)
 3. UFC Required (hospitals, police, fire, etc.)
 4. Support facilities (housing, MWR, etc.)
- * Working to better define these in order to estimate costs of resilience / sustainment

Grid and Onsite Energy Sources

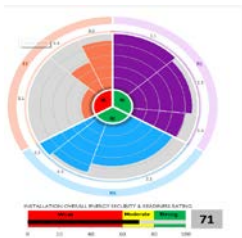


From NAVFAC P-602

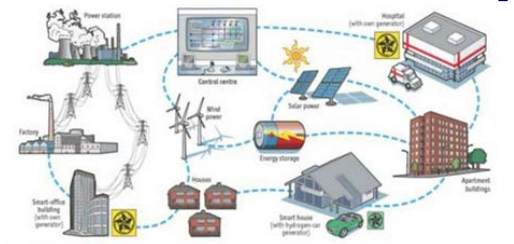


Energy Mission Integration Group (EMIG) Processes

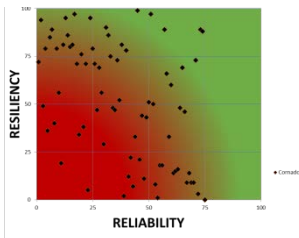
1. Gap Analysis



2. Solutions Development



3. Project Prioritization



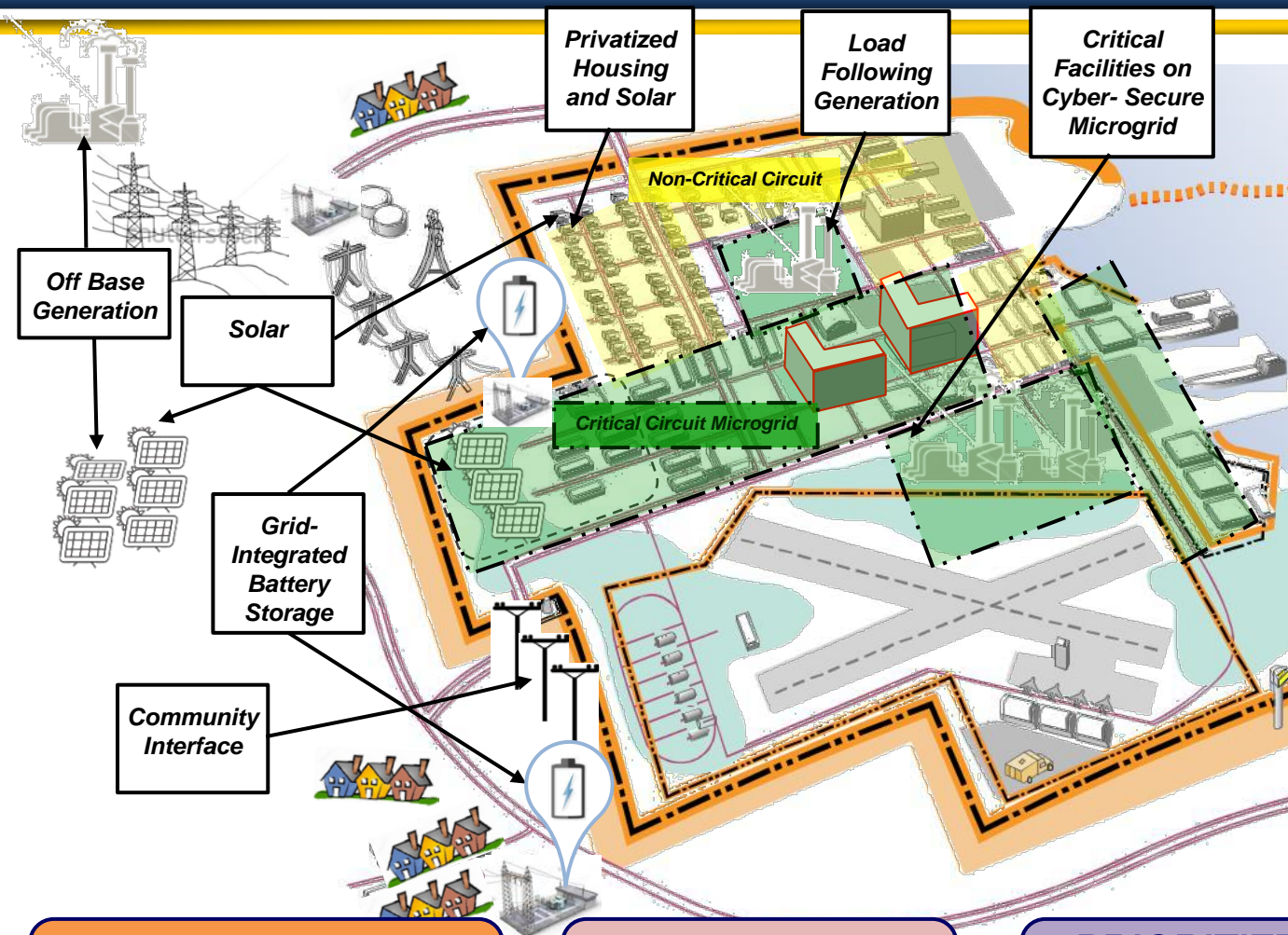
3 Pillars Benchmarks
(Reliability, Resiliency,
Efficiency), Mission
Assurance Assessments,
Utility Condition

All technologies,
local & regional
resources,
Business Case
Analysis

Installation
Priority,
mission
impact,
urgency,
ROI



Installation Energy Plans



Guiding Principles

- Warfighting missions first
- Essential Support functions
- Metrics-based assessment
- Mission-based prioritization
- Integrate cyber security
- Synchronize projects
- Leverage 3rd Party Financing when appropriate
- Technology-agnostic reqts
- Diverse and distributed energy resources
- Lifecycle cost analyses

SET REQUIREMENTS

Mission Assurance, P-602, UFC, BFR

ASSESS STATUS

ESAT, UICAP, MIT/LL, UA

PRIORITIZE & PLAN

EMIG, IPL, IEP, POM

EXECUTE

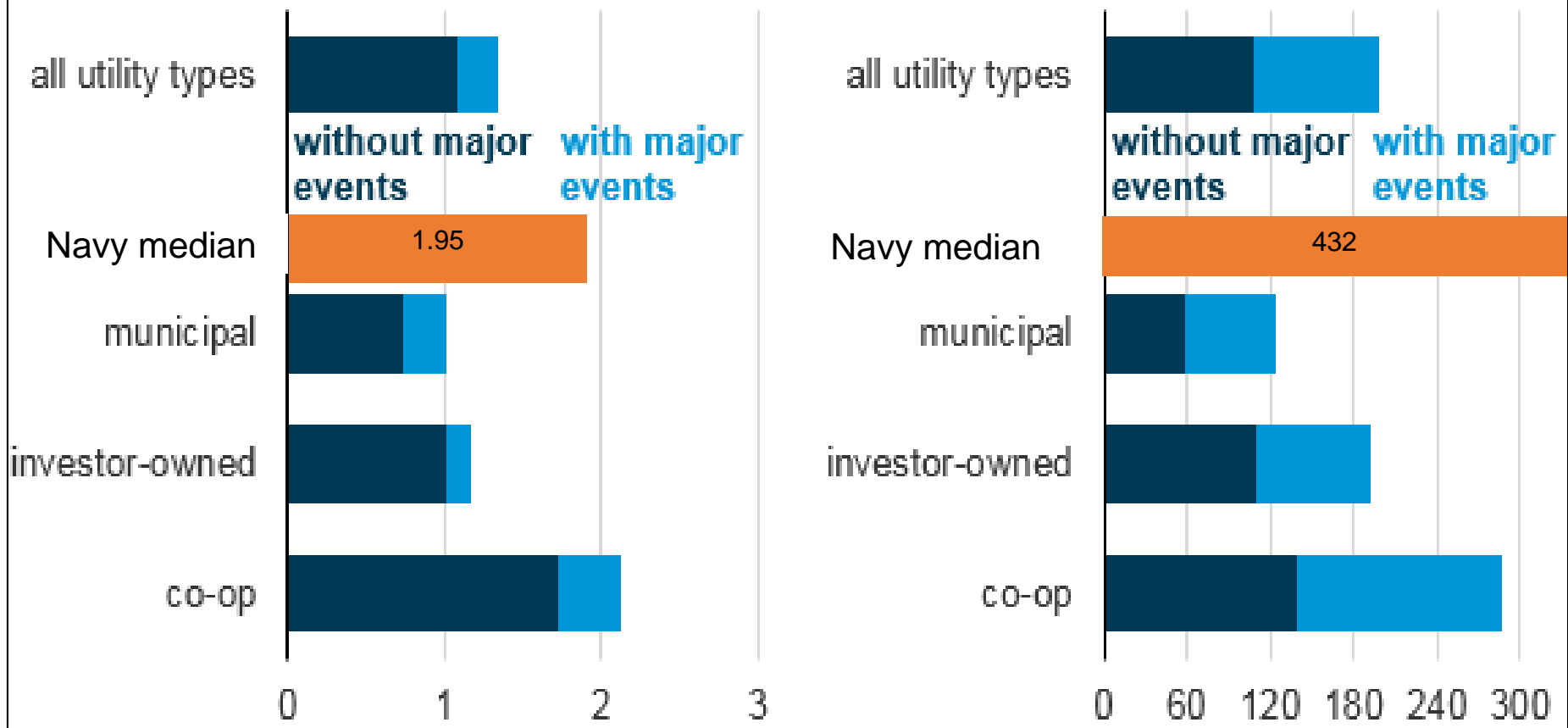
APF, ESPC, UESC, UEL, Outgrant, PPA

Navy Utility Reliability Pillar Improvement Initiatives

- Navy Reliability Information
- Navy Utility Infrastructure Condition Assessment Program (UICAP)
- Navy Utility Condition Assessments
- Navy's Utility Investment Strategy
- Utility Privatization Status
- Key Takeaways

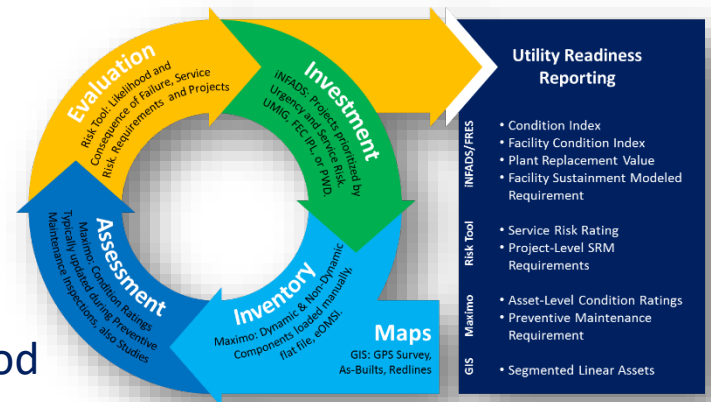
Utility Reliability Information including Navy – EIA Average SAIFI/SAIDI

Average electric power service interruptions per customer by utility type, 2015
frequency (number of instances) total duration (minutes)



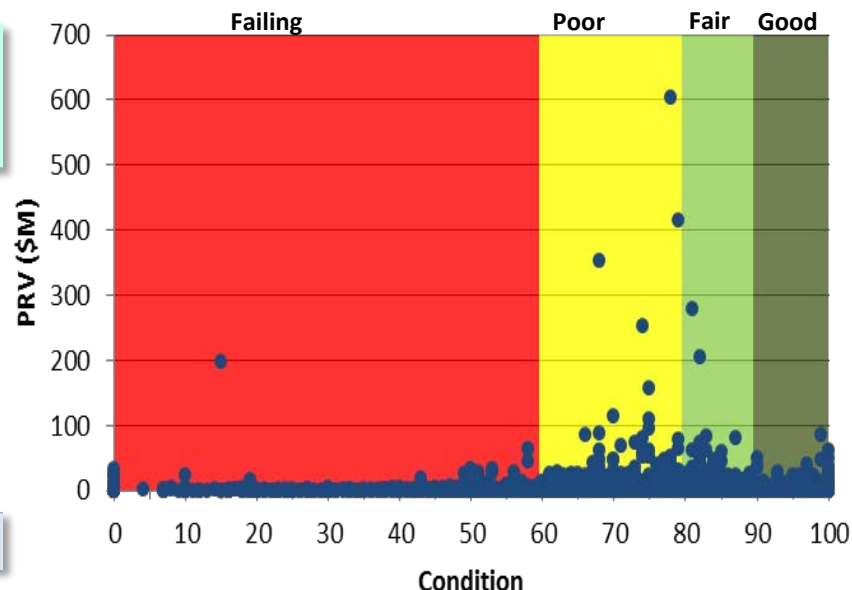
Navy Utility Infrastructure Condition Assessment Program (UICAP)

- **Purpose:** Identify the State of the Navy's Utility Infrastructure Assets
- **Program Development:** FY13-FY16
- **Primary Objectives:**
 - Conducted Utility Equipment Inventory and Condition Assessment
 - Integrated data into Navy's legacy information systems (MAXIMO/iNFADS/GIS)
 - Conducted Risk Evaluation and Developed Risk-Based Investment Plan
 - Developing a Comprehensive Preventive Maintenance Program
- **Risk Evaluation Considerations:**
 - Consequence of Failure of Asset
 - Likelihood of Failure of Asset
- **Risk-Based Investment Decisions:**
 - Convergence between Risks associated with Consequence of Failure and Likelihood of Failure of NWCF Utility System Asset



Navy Condition Assessments

| <u>Type of Utility</u> | <u>Total #</u> | <u>Plant Replacement Value (PRV)</u> | <u>% PRV</u> | <u>AVG CI</u> |
|------------------------|----------------|--------------------------------------|--------------|---------------|
| Chiller Plant & AC | 51 | \$0.40B | 2% | 78 |
| Electrical Power | 3,896 | \$9.15B | 51% | 75 |
| Gas | 502 | \$0.22B | 1% | 78 |
| Waste Water/ Sewage | 2,754 | \$2.96B | 16% | 76 |
| Steam/ Hot Water | 682 | \$2.36B | 13% | 79 |
| Water | 2,336 | \$3.03B | 16% | 75 |
| Grand Total | 10,221 | \$18.12B | 100% | 76 |



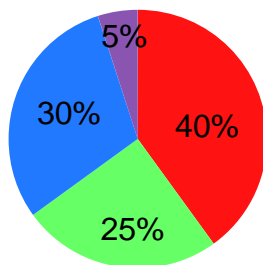
Utility Systems Condition Assessment Summary

- 54% of *ALL Utility* assets: Failing (8%) or Poor (46%) Condition
- 51% of *Electrical Power* assets: Failing (10%) or Poor (41%) Condition
- 61% of *Waste Water/ Sewage* assets: Failing (4%) or Poor (57%) Condition
- 62% of *Water* assets: Failing (8%) or Poor (54%) Condition
- 48% of *Steam/ Hot Water* assets: Failing (6%) or Poor (42%) Condition

Navy's Utility Investment Strategy

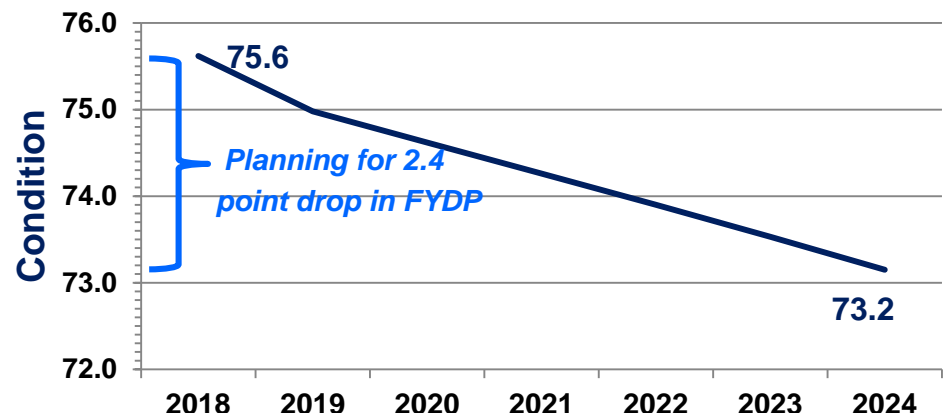
- Top – Down Driven based upon Programmatic Strategic Intent
- Risk-Based focused on Probability and Impacts of Utility System Failures
- Navy following established governance to effectively prioritize Utility Systems Infrastructure Investments
- Targeting Highest Risk Areas by End of the FYDP (FY24):
 - Electrical, Water and Wastewater Systems
 - Naval Shipyard Utility System Infrastructure
- Utilize Utilities Privatization to help support “Investment Gaps”

Projected Utility Systems Investment Distribution



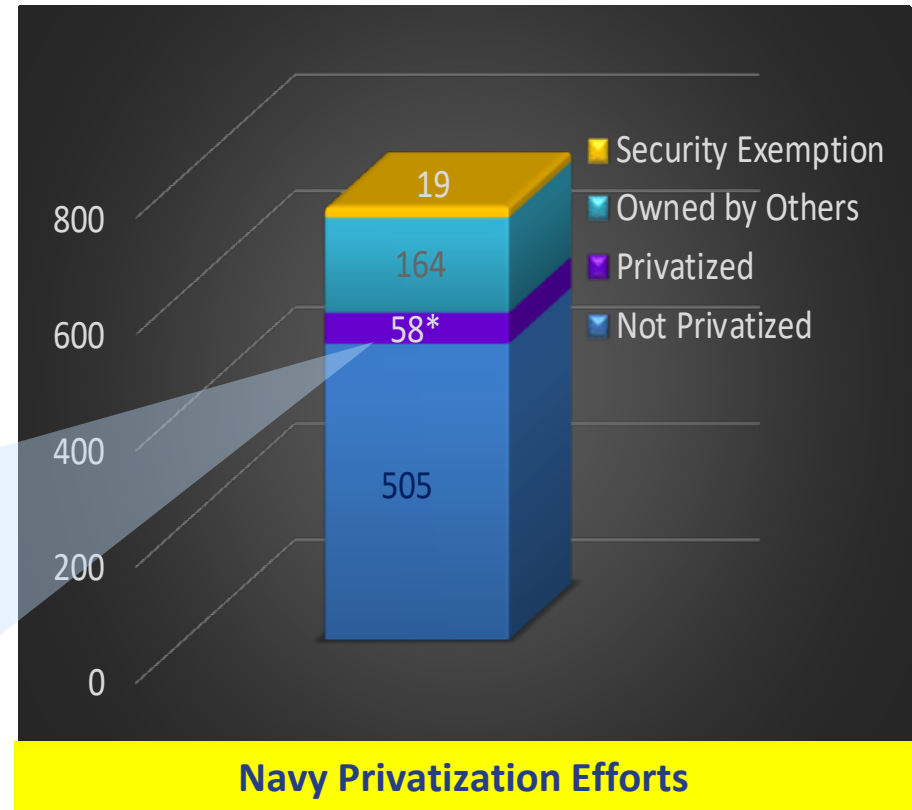
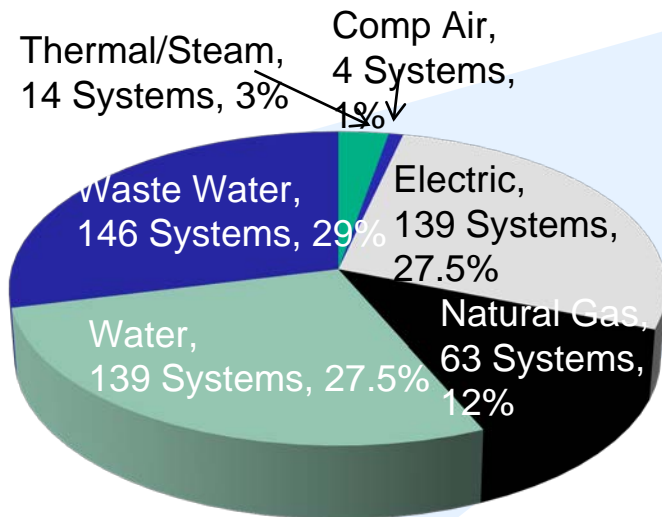
■ Electrical ■ Wastewater ■ Water ■ Other

Projected Condition (CI) Degradation



Utility Privatization Status

- **Utilities Privatization was mandated by Presidential EO 12803 of April 30, 1992. The Navy privatized 32 systems 1992-2015 under this EO, which has now expired. Legislative Authority Title 10 USC Sec 2688 still in effect.**



*Note: Of the 58 Privatized Systems only 32 are privatized under USC 2866

Key Takeaways

- **Energy Security is a top priority for DoN**
- **Future energy investments will be prioritized based on mission requirements for reliability and resiliency**
- **Navy utilizes a comprehensive Utility Infrastructure Condition Assessment Program that identifies Asset Condition, Relative Risks and Impacts on Navy Mission**
- **Higher Navy mission priorities over the years have led to continued underfunding for Utilities Systems Infrastructure**
- **Navy has a Targeted Risk-Based Investment Strategy to ensure critical missions are supported**
- **UP may help to resolve gaps with DoN utility capabilities, but will only be used if business case shows it is the best value solution**

Questions

POCs

- CDR Jen Tetatzin, ASN(EI&E)
jennifer.tetatzin@navy.mil
- Dave Capozzoli, NAVFAC
david.capozzoli@navy.mil